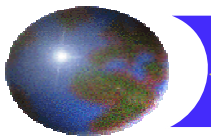


***Identifying Teen-Birth “Hot Spots”
Using GIS: District of Columbia,
2000-2001***

Fern M. Johnson-Clarke, Ph.D.

State Center for Health Statistics Administration
District of Columbia Department of Health



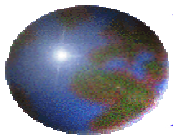
Abstract

Introduction—One *Healthy People* 2010 objective is to reduce pregnancies among adolescent females. This study identified geographic areas within census tracts in D.C. that have high teen births/birth rates (“Hot Spots”) by racial/ethnic groups.

Method—Mothers’ addresses on birth certificates that occurred to District female residents aged 15-19 years in 2000 and 2001 were geocoded. Denominators for population-based rates were obtained from the D.C. Office of Planning.

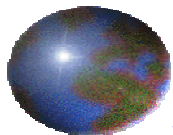
Results—Geocoded data displayed “Hot Spots” in D.C. The 2001 teen birth rate was 49.4 births per 1,000 women for D.C. and 45.8 for U.S. Black teen birth rates decreased from 76.3 in 2000 to 70.1 in 2001. Hispanic teen birth rates declined from 87.3 in 2000 to 79.1 in 2001.

Conclusion—The spatial information may be used as a tool in targeting interventions and visually determining shifts in the distribution of teen births. GIS can document improvement in eliminating racial/ethnic health disparities

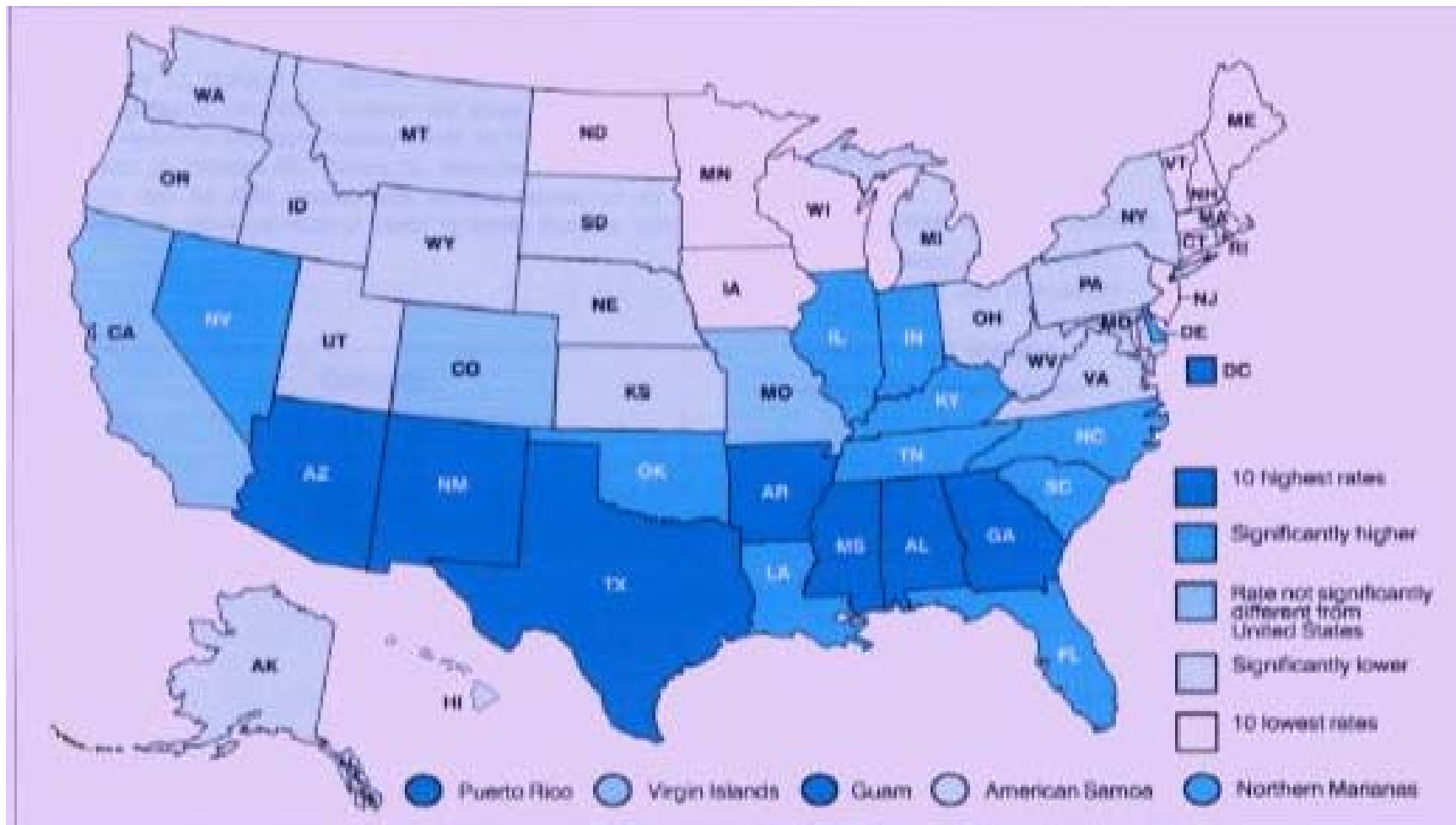


Introduction

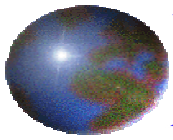
- One *Healthy People* 2010 objective is to reduce pregnancies among females ages 15-17 years, in addition to eliminating any racial and ethnic disparities among this population subgroup.
- The Problem of Teen Pregnancy
 - ▣ Costs to U.S. taxpayers - \$7 billion each year
 - ▣ Costs to D.C. taxpayers – \$747 million
 - ▣ D.C. teen birth rate is ranked in the 10 highest among states in the U.S., but the rate declined more than 25 percent from 1991-2001
 - ▣ When teens give birth, linked to critical issues:
 - Welfare dependency and overall child well-being
 - More likely to be single parents
 - Less likely to succeed in workforce development
 - Child less likely to have responsible father



Percent Decline in Teenage Births by State, 1991-2001

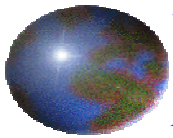


Source: National Center for Health Statistics, 2002



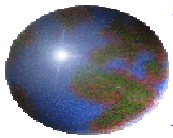
Purpose of Presentation

- Since abortion reporting in D.C. excludes address, using birth event as a proxy to pregnancy
- Identify “Hot Spots” by address for teens 15-19 years located within each Ward of the District of Columbia
- Identify areas with high Hispanic or Latina births/birth rates for teens 15-17 years
- Identify areas with high black/African American births/birth rates for teens 15-17 years



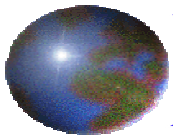
Background

- The District of Columbia carries out its functions as a city, county, and state.
- The District has 192 census tracts, which are grouped into 39 neighbor clusters and eight wards.
- 2000 Census Population
 - 572,059 - Total population
 - 176,101 (30.8%) – White
 - 343,312 (60.0%) – Black or African American
 - 39,200 (6.9%) – all other races
 - 13,446 (2.4%) - two or more races
 - 44,953 (7.9%) - Hispanic/Latino may be of any race and included in the above race distribution.
 - Wards with large Hispanic/Latino population are Wards 1, followed by 4, 2, 3.



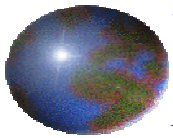
Method

- Mothers' residential addresses reported on the birth certificates of births to District female residents aged 15-19 years in 2000 and 2001 were geocoded using ArcView.
- Denominators for population-based rates were obtained from the D.C. Office of Planning.



Results

- Teenage birth rates have been declining during the 1990s both for the U.S. and the District (Tables 1 and 2).
- The 2001 teen birth rate was 49.4 births per 1,000 women aged 15-19 years for D.C. versus 45.8 for the U.S.
- D.C. birth rate for teens 15-17 years dropped 49 percent between 1991-2001. Birth rate decreased from 48.2 in 2000 to 40.8 in 2001.
- D.C. teen birth rate 18-19 years also declined from 57.0 in 2000 to 55.7 in 2001 and 22 percent from 1991-2001.



Results (cont.)

- D.C. Black teen rate, 15-19 years, decreased from 76.3 in 2000 to 70.1 in 2001 (-8.1%).
- D.C. Black teen rate for 15-17 years decreased from 53.6 in 2000 to 45.2 in 2001 (-15.7%).
- D.C. Hispanic Teenage birth rate , 15-19 years, declined from 87.3 in 2000 to 79.1 in 2001 (-9.4%).
- D.C. Hispanic birth rate for 15-17 years decreased from 71.1 in 2000 to 59.3 in 2001 (-16.6%).

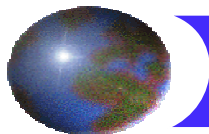


Table 1: Birth Rates* for teenagers aged 15-19 Years by Race/Ethnicity, District of Columbia, 2001

Race/ Ethnicity	2001			Percent Change 1991-2001		
	15-19 Years	15-17 Years	18-19 Years	15-19 Years	15-17 Years	18-19 Years
United States	45.8	25.2	75.5	-26.2	-34.9	-20.0
U.S. Black	73.2	45.6	113.2	-	-	-
U.S. Hispanic	92.5	57.0	143.5	-13.3	-19.3	-9.5
D.C.	49.4	40.8	55.7	-35.5	-49.2	-21.8
D.C. Black	70.1	45.2	100.4	-	-	-
D.C. Hispanic	79.1	59.3	97.4	-	-	-

*Age-specific rate per 1,000 women in each age group.

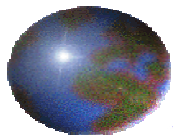


Table 2: Birth Rates* for Teenagers Aged 15-19 Years by Race/Ethnicity, District of Columbia, 2000-2001

Race/ Ethnicity	2001			2000		
	15-19 Years	15-17 Years	18-19 Years	15-19 Years	15-17 Years	18-19 Years
United States % change	45.8 -5.6	25.2 -8%	75.5 -4.7	48.5	27.4	79.2
U.S. Black %change	73.2 -7.8	45.6 -9.5	113.2 -6.7	79.4	50.4	121.3
U.S. Hispanic % change	92.5 -2%	57.0 -5%	143.5 -0.07	94.4	60.0	143.6
D.C. %change	49.4 -7.1%	40.8 -15.4	55.7 -2.3	53.2	48.2	57.0
D.C. Black %change	70.1 -8.1	45.2 -15.7	100.4 -3.4	76.3	53.6	103.9
D.C. Hispanic % change	79.1 -9.4	59.3 -16.6	97.4 -4.8	87.3	71.1	102.3

*Age-specific rate per 1,000 women in each age group. Percent change 2000-2001 below birth rates.

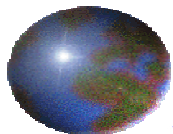
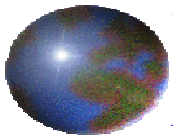


Table 3: Population, Births, and Birth Rates by Ward, District of Columbia, 2001

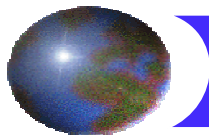
Ward	Black Pop.	Black Births	Rate* 15-19	Hisp. Pop.	Hisp. Births	Rate* 15-19
1	34,581 43.2%	399 35.9%	60.1 (72)	18,750 23.4%	447 40.3%	77.4 (51)
2	25,206 30.4%	432 51.9%	79.0 (69)	7,155 8.6%	127 15.2%	63.7 (16)
3	5,049 6.3%	42 4.5%	5.7 (1)	5,138 6.5%	57 6.1%	33.1 (6)
4	55,628 77.9%	605 62.3%	40.0 (77)	9,158 12.8%	296 30.5%	114.9 (37)
5	58,702 88.2%	737 90.8%	71.8 (146)	1,666 2.5%	31 3.8%	169.5 (10)
6	44,992 68.7%	586 70.9%	64.1 (100)	1,585 2.4%	20 2.4%	53.6 (3)
7	62,677 96.9%	882 97.1%	77.3 (168)	589 0.9%	6 0.7%	62.5 (2)
8	56,477 91.8%	1,067 88%	102.7 (201)	912 1.5%	21 1.7%	0.0 (0)
Total	343,312 60.0%	4,753 62.4%	70.1 (834)	44,953 7.9%	1005 13.2%	79.1 (125)

*Rate per 1,000 women aged 15-19 years. Birth rates used as best proxy for pregnancy rates because abortion data are not reported by address. Number in parentheses.

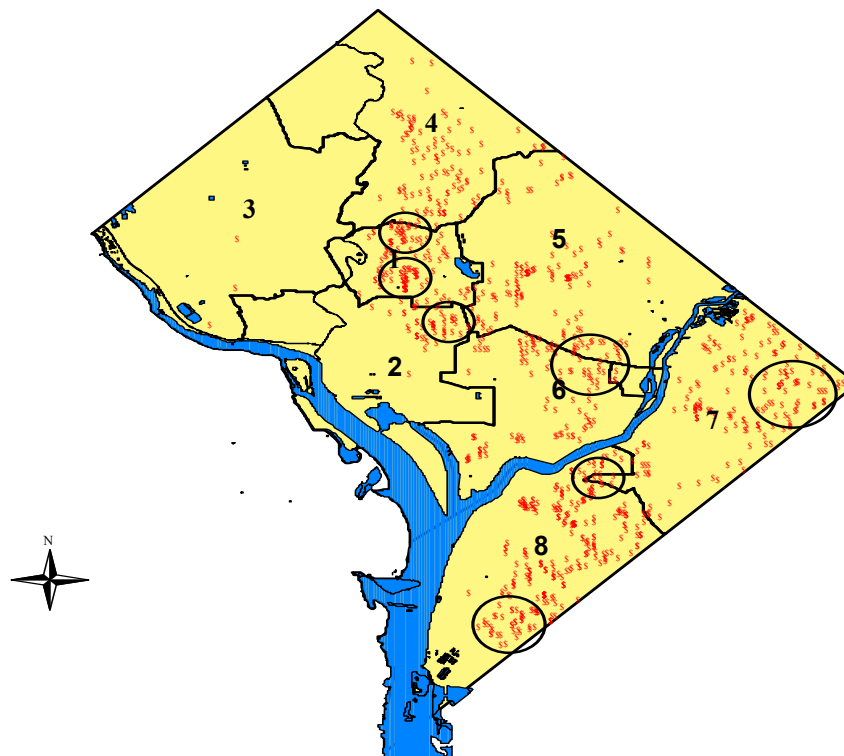


Results (cont.)

- Among Black teens 15-17 years, analyses by Ward, zip code, census tract, and neighborhood cluster consistently showed that Wards 5 (53 births), 7 (69 births), and 8 (65 births) had the highest number of births in 2001. Zip 20019=65 births (58 births in W7), 20002=43 births (29 births in W5), and 20020=43 births (25 births in W8) Table 3).
- Among Hispanic teens 15-17 years, Ward 1 followed by Ward 4 had the highest number of births. Zip 20010=16 births, all in W1, 20011=11 births, all in W4.

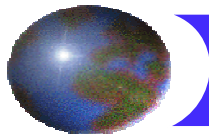


Teen Births (15 - 19 years) by Ward: District of Columbia, 2000

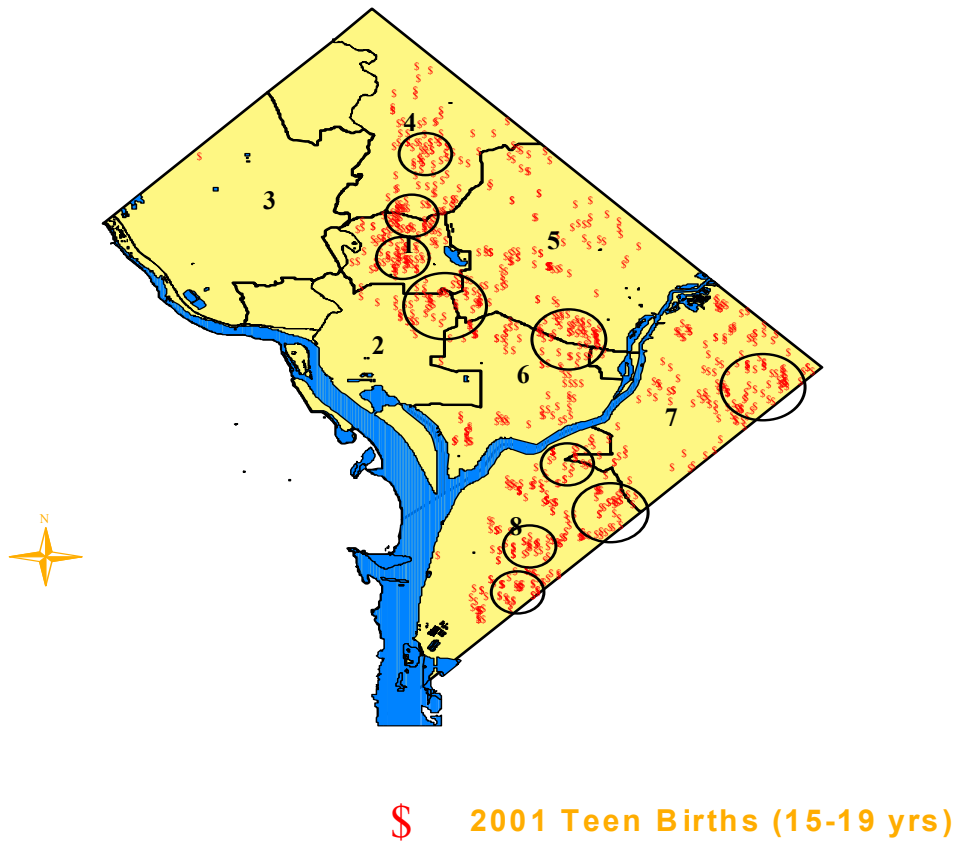


§ 2000 Teen Births (15-19 yrs)

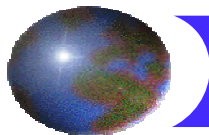
Source: State Center for Health Statistics Administration, District of Columbia Department of Health



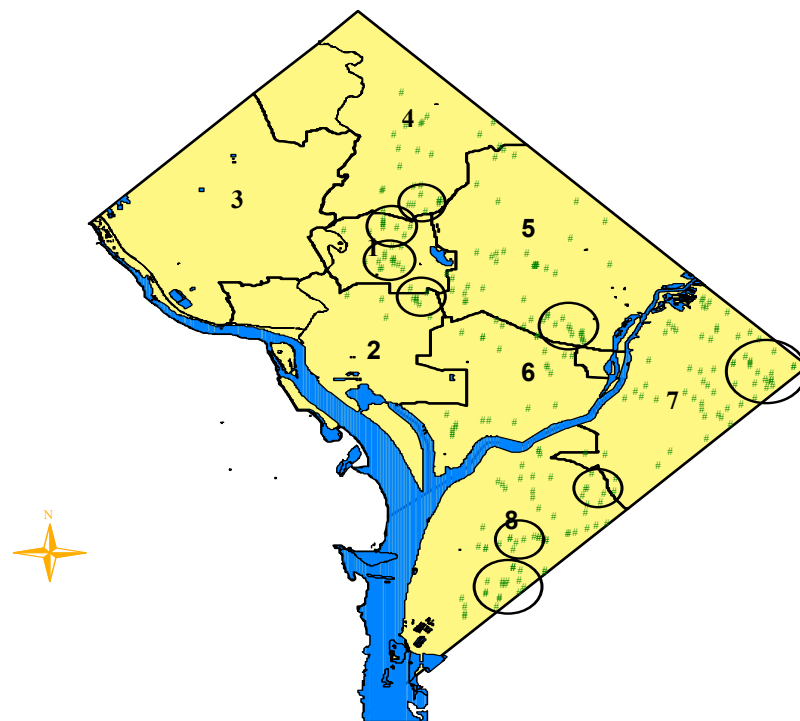
Teen Births (15 - 19 years) by Ward: District of Columbia, 2001



Source: State Center for Health Statistics Administration, District of Columbia Department of Health

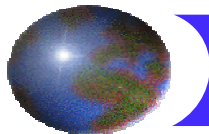


Black Teen Births (15 - 17 years) by Ward: District of Columbia, 2001

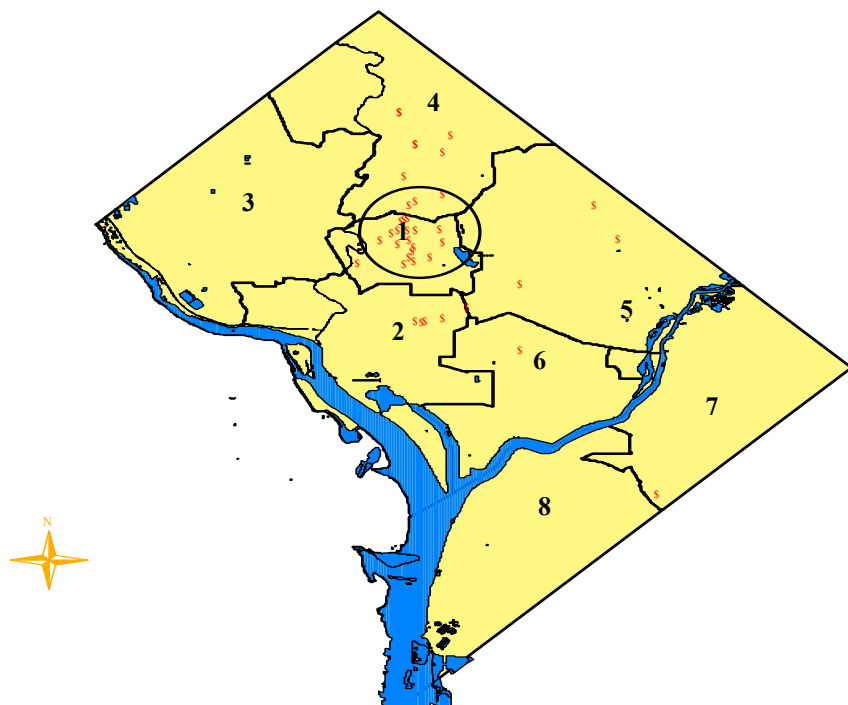


2001 Black Teen Births (15-17 yrs)

Source: State Center for Health Statistics Administration, District of Columbia Department of Health

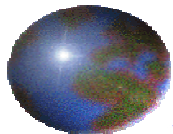


Hispanic Teen Births (15 - 17 years) by Ward: District of Columbia, 2001



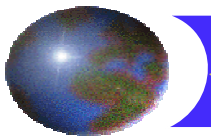
2001 Hispanic Teen Births (15-17 yrs)

Source: State Center for Health Statistics Administration, District of Columbia Department of Health



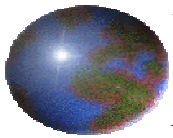
“Hot Spots” by Ward

- For Black/African American Teens:
- Ward 1 – 15-17 yrs.-Neighborhood 2, census tracts 28, 36, & 37-Mt. Pleasant, Columbia Heights, Pleasant Plains, Park View – 5th largest Black Population; 2nd largest births; 6th largest teen (15-19 yrs) births.
- Ward 2 – 15-17 yrs.-Neighborhood 7, census tract 49.1- Logan circle, Shaw; census tract 64. Ward 2 has 7th largest Black population; 7th largest teen births 15-19. 6th largest births.
- Ward 4 – 15-17 yrs.-Neighborhood 17, 19.1; cluster 18, 24; cluster 20, 95.4 – Brightwood; Brightwood Park; Ft. Totten. 4th largest Black population. 3rd largest births; 5th largest teen, 15-19, births.



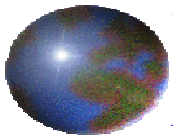
“Hot Spots” by Ward (cont.)

- Ward 5 – 15-17 yrs.-Neighborhood 22, census tracts 91.2; 23, 88.2, 88.4; 21, 92.2 – Edgewood, Saratoga Ave, Trinidad. 2nd largest Black Population; smallest number of births; 3rd largest teen (15-19 yrs) births.
- Ward 6 – 15-17 yrs.-Census tracts 75.1, 75.3, 76.1 – Morris Rd, Ridge Pl. 5th largest Black population; 4th largest teen births 15-19. 6th largest births.
- Ward 7 – 15-17 yrs.-Benning Hts., Kenilworth; Mayfair, Corner Eastern and Southern Aves, N.E. Census tracts 77.7, 78.5, 78.8, 96.1, 96.2 – Largest Black population. 5th largest births; 2nd largest teen, 15-19, births.



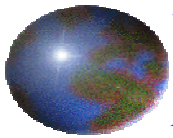
“Hot Spots” by Ward (cont.)

- Ward 8 – 15-17 yrs.-Neighborhoods 36, 37, & 39; census tracts 73.4, 74.5, 74.8, 98.1, 98.2, 98.4, 98.6 – Buena Vista; Congress Heights, Bellevue, Washington highlands; Ridge Ct. 3rd largest Black population. But largest number of births and largest teen births.
- For Hispanic/Latina teens:
 - Ward 1 – Teens 15-17 yrs. Mount Pleasant; Park View; Columbia Road, NW; Irving Street, NW. Largest Hispanic Population; largest Hispanic births and largest Hispanic teen births, 15-19 years.
 - Ward 4 – No “Hot Spots” for 15-17 years. Ward 4 has 2nd largest Hispanic population. 2nd largest Hispanic teen births, 15-19 years. 2nd largest Hispanic births.



Conclusion

- The spatial information may be used as a tool in targeting interventions and visually determining shifts in the distribution of teen births.
- GIS can assist in:
 - ❏ Identifying high risk groups in critical areas
 - ❏ Public health surveillance and monitoring
 - ❏ Generating research hypotheses
 - ❏ Planning, programming, management, and health-related policymaking
 - ❏ Resource allocation/reallocation
 - ❏ Documenting HP 2010 improvement in eliminating racial/ethnic health disparities



References

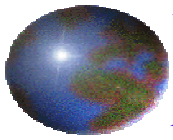
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Department of Health, Government of the District of Columbia

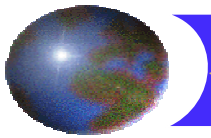
Acknowledgments

The author acknowledges Joy E. Phillips, Ph.D. for her assistance with the maps presented in this paper.



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Contact Information

Fern Johnson Clarke, Ph.D.
fclarke@dchealth.com

*Chief, Research and Analysis Division
State Center for Health Statistics Administration
DC Department of Health
825 North Capitol Street, N.E.
Washington, DC 20002
Ph: (202)442-5865
Fax: (202)442-4833*